

## Kambale Graphite Core Drilling Underway

### Core for test work to assess concentrate use in EV battery production

- 4-hole, 370m diamond core drilling program underway.
- Retrieved samples for use in Phase 2 test work to assess amenability of graphitic schist to produce a fine flake graphite concentrate for EV battery anode manufacture.
- Follow-on 31-hole, 2,460m RC drilling program aimed at better defining and infilling high-grade zones.
- Exploration Target estimate due end-November 2022.
- JORC Mineral Resource estimate scheduled for end-Q1 2023.

Castle Managing Director, Stephen Stone commented ***“We continue to fast-track the emerging Kambale graphite project with a diamond core drill program commencing just days after reporting results from a recently completed RC drilling campaign which successfully extended the Kambale deposit’s north-south axis to 2.5km.”***

***We plan to have the core drilling and a follow-on 31-hole infill RC drilling completed by early-December and core samples in Perth ready to start Phase 2 test work by Christmas.***

***The test work will aim to produce a fine flake graphite concentrate suitable for use in the manufacture of electric vehicle battery anodes.***

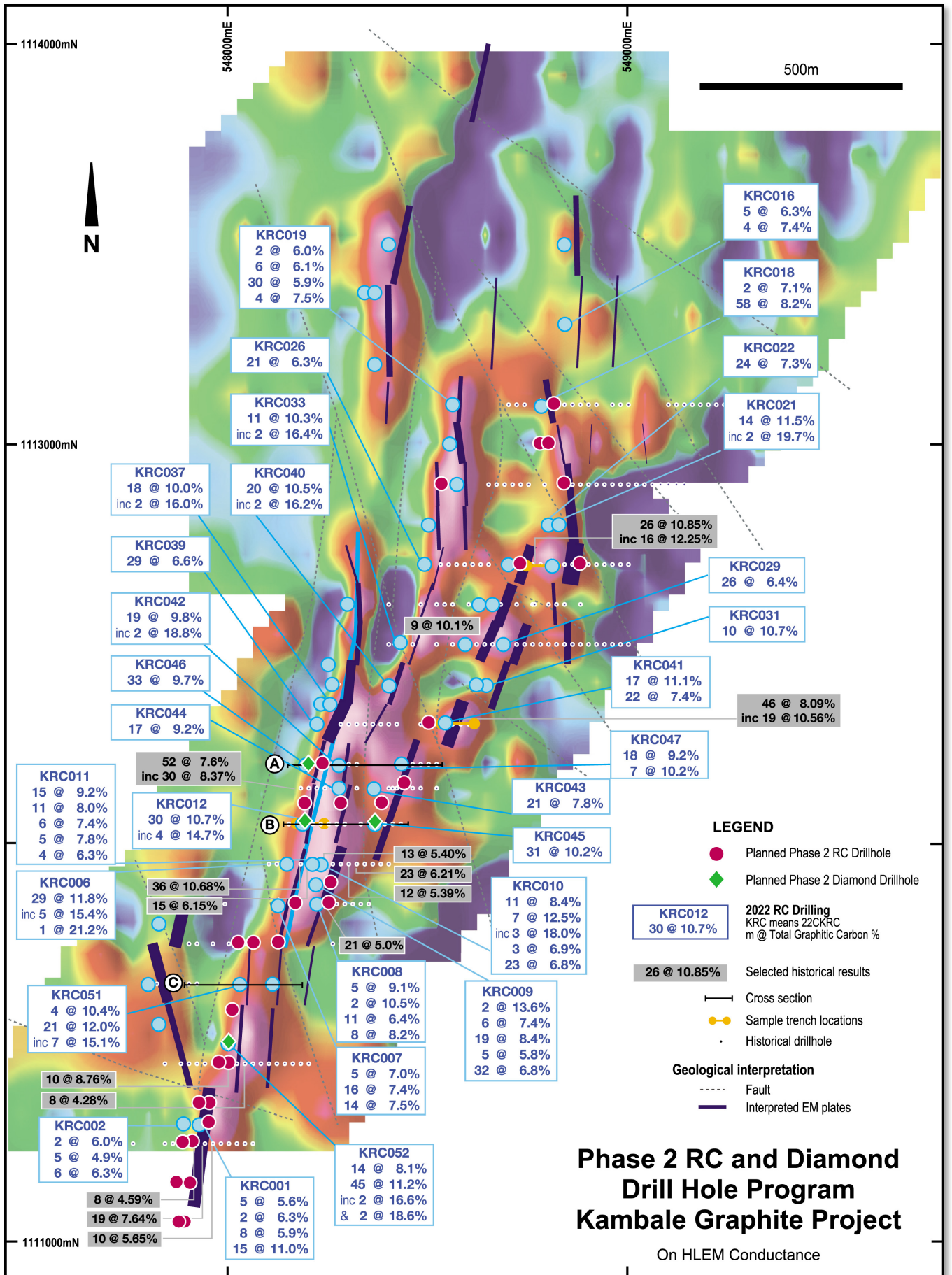
***Our consultants should deliver an independent Exploration Target estimate by end-November and we plan to provide a maiden JORC 2012 Mineral Resource by the end of Q1 2023. So, just with Kambale alone there is a lot for Castle’s shareholders to look forward to in the near-term.”***

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Junior explorer and project incubator, Castle Minerals Limited (ASX: CDT) (“Castle” or the “Company”), advises that it has commenced a 4-hole, 370m diamond core drilling program at its emerging flagship Kambale graphite project, Ghana, to retrieve samples for Phase 2 test work aimed at producing a fine flake graphite concentrate that could be sold for use in the manufacture of electric vehicle battery anodes (“Project”)(Fig 1).

A follow-on 31-hole, 2,460m RC drilling program is aimed at better defining high-grade graphitic schist zones and for infill purposes to support a maiden JORC 2012 Mineral Resource estimate scheduled for end-Q1 2023.

Fig 1: Plan of planned diamond core and RC drill holes.



Castle recently reported results from the final 29 holes of a 52 hole, 5,353m RC drill program where mineralisation comprising a series of sub-parallel graphitic schist zones was confirmed to extend north-south for 2.5km. Several of the RC holes returned thick, high-grade and multiple intercepts of graphite with results overall reinforcing expectations that ultimately a series of higher-grade zones will be outlined within a broader but still well mineralised envelope.

### **Core drilling and test work**

The diamond drill core will be obtained from four locations providing a good representation of the graphite schist material and its variability.

Phase 1 test work was conducted on near-surface, trench excavated material where weathering of the graphite and gangue material will have impacted the mineralogy and subsequent concentration process.

The weathering profile is observed to extend to a depth of 30-40m below surface. Fresh graphitic schist has been drilled to a vertical depth of at least 100m and remains open at depth.

Phase 2 test work will comprise a series of beneficiation, flotation and grinding cycles on composited core to develop a preliminary process flowsheet design aimed at producing a commercial grade fine flake graphite concentrate for possible application in electric vehicle battery anode manufacture.

The rock density, structural integrity and other attributes of the core will be measured for use in the proposed Mineral Resource estimate and in any mining scoping studies, should they be warranted.

### **Exploration Target**

An independent Exploration Target estimate based on the recently completed and historical drilling is planned to be delivered by end-November 2022.

## **PROJECT BACKGROUND**

The Kambale graphite deposit was identified in the 1960s by Russian geologists prospecting for manganese. They undertook a program of trenching and drilled 25 holes to a maximum depth of 25m. A subsequent report noted “two main zones of graphitic schists averaging around 10% to 15% graphite within which there were higher grade zones and that the graphite is the flaky variety with fine crystals (usually less than 0.25mm).” (Report on the Geology and Minerals of the South Western Part of the Wa Field Sheet, Pobedash, I.D. 1991).

The mineralisation consists of north-east trending, sub-parallel zones of graphitic schists found within the Lower Proterozoic Birimian (~2.2Ma) Wa-Lawra Greenstone belt. The schists generally trend north-easterly and dip between 50° and 75° to the north west. They are hosted mainly in granodiorite to the north and biotite and quartz mica schists in the south.

The genesis of the flake graphite in Kambale is believed to be associated with high-grade metamorphism (amphibolite-granulite facies) where metamorphic derived CO<sub>2</sub> rich hydrothermal fluids have infilled shear related dilational zones and formed the graphite during the extreme metamorphic event.

Castle has reviewed this historical work and a wide-spaced, regional-scale electromagnetic survey dataset inherited from previous licence holder, Newmont Limited. This outlined a roughly elongate, north-south orientated, ~10km-long region considered prospective for graphitic schist horizons which may host multiple lenses of graphite mineralisation, similar to what is already outlined from drilling and trenching at Kambale. These lenses or horizons can vary in length and be up to 50m wide, creating substantial deposits of graphite.

Encouraged by firm graphite prices in 2012, Castle undertook three consecutive phases of drilling comprising RAB (251 holes, 5,621m), aircore (89 holes, 2,808m) and reverse circulation (3 holes, 303m). Mapping noted occasional outcrops of manganese and graphitic schist as well as graphite in termite mounds.

In 2012 Castle undertook a very limited program of bench-scale test work on RC chips which was not an ideal sample. The work returned mixed results. Thereafter, little work was undertaken until the more recent improvement in graphite prices prompted a re-evaluation of the Project in early 2021.

In September 2021 Castle reported that preliminary test work on sub-optimal, trench excavated near-surface, weathered graphitic schists yielded very encouraging fine flake graphite concentrate grades of up to 96.4% and recoveries of 88% using a conventional multiple grind and flotation concentration flowsheet. Three excavated and composited samples provided for the test work graded 12.56%, 16.09% and 17.16% total carbon.

In March 2022, a ground electromagnetic (HLEM) survey demonstrated a strong correlation between drill confirmed graphite mineralisation and zones of high conductivity. Several high conductivity zones extending well outside of the existing Inferred Resource boundary were highlighted indicating the possibility of extensions of the known graphitic schists into sparsely or undrilled areas.

In July 2022 Castle completed and subsequently reported in November 2022 the results of a 52-hole, 5,353m RC drill program which, amongst other positive developments, confirmed multiple, subparallel graphitic schist zones to extend for at least 2.5km north-south and a strong correlation between interpreted conductor plates and mineralisation.

### **Logistics**

The Project is located 6km west of the Upper West region capital of Wa which is 400km north, via good sealed roads, of Kumasi. From Kumasi it is approximately 240km south east by rail or road to the international port of Tema, 30km west of the capital Accra, which provides direct access to global export markets. An alternative international port at Sekondi - Takoradi is located approximately 230km west of Accra.

The Wa region has an excellent infrastructure comprising a commercial airport with daily flights, reliable grid power supplied from the Bui hydroelectric dam, river (Black Volta River) and artesian water and many other services. The landscape is generally flat to rolling savannah vegetation with seasonal rains followed by a dry season (Harmattan).

Ghana is an established, safe and political stable mining jurisdiction. It has a well-trained and very capable minerals industry workforce. Its mining services and supply sectors are well established.

### **ESG**

Castle management has spent over 14 years successfully operating in Ghana and in particular its Upper West region. The Company's management has established an excellent reputation for its pro-active commitment to community engagement, local employment and training, the promotion of youth and women's development, maintaining the highest environmental operating standards and overall operating ethically and sustainably whilst carefully managing community expectations.

Prior to embarking on any specific exploration program the Company's Ghanaian team conducts comprehensive discussions with all stakeholders to fully inform them as to the Company's activities and to identify sites of cultural, religious, social and economic sensitivity and to appropriately mitigate any matters of concern. Compensation for access and any disruptions caused is provided at a minimum as per Ghana Mining Act guidelines.

### **Graphite market**

The graphite market is diverse across industrial, metallurgical, chemical and specialised areas with each sector requiring graphite concentrates with specific qualities. Deposit type, size and geometry, flake size, flake shape, grade, impurities, capital and operating costs, proximity to specific markets, supply logistics, jurisdiction, fiscal regime and many other factors all combine to determine the commercial viability of a particular deposit.

The current medium to long term outlook for the broader graphite concentrates market is one of escalating demand and a looming supply deficit driven in particular by its un-substitutable use in the fast-growing electric vehicle and stationary power storage sectors. Hence, prices for fine flake graphite concentrates have shown a steady upward trend in the past year which appears likely to continue for sometime.

The reader is directed to numerous recent publications, conference proceedings, specialist commodity research houses and corporate websites of companies engaged in graphite exploration and/or production for informed commentary and analysis of the graphite business and markets.



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**PREVIOUSLY REPORTED INFORMATION RELATING TO THIS RELEASE**

Additional details, where applicable, can be found in the releases referenced in this Report and/or in the following releases lodged by the Company with the ASX:

Headline	Date
Kambale Graphite deposit Extended	3 November 2022
Encouraging Kambale Graphite project Interim Drill Results	29 September 2022
Kambale Graphite RC Drilling Program Completed	24 August 2022
More Graphite Zones at Kambale	11 July 2022
Drilling Campaign Launched at Kambale Graphite Project	14 June 2022
Kambale Graphite EM Survey Increases Size Expectations	31 March 2022
EM Survey Commences at Kambale Graphite Project Ghana	14 March 2022
Encouraging Graphite Test Work Results	21 September 2021
Kambale Graphite Test Work Update	5 August 2021
Graphite Test Work Underway	3 June 2021
Castle to Reappraise Kambale Graphite Project, Ghana	15 March 2021
Drilling Doubles Strike length of Kambale Graphite Deposit	17 September 2012
Metallurgy Test Work Confirms Commercial Potential of Kambale Graphite Deposit	3 September 2012
High Grade Graphite intercepts Extend Kambale Deposit	24 August 2012
Maiden Resource Confirms Kambale as One of World's Largest Graphite Deposits	24 July 2012
Large High Grade Deposit Confirmed at Kambale	6 July 2012
Extensive Zones of High Grade Graphite Intersected	9 May 2012

## About Castle Minerals Limited

Castle Minerals Limited is an Australian Securities Exchange (ASX: CDT) listed and Perth, Western Australia headquartered company with interests in several projects in Western Australia and Ghana that are prospective for battery metals (lithium and graphite), base metals and gold.

The **Earaheedy Basin** project encompasses terrane prospective for base and precious metals in the Earacheedy and Yerrida basins base metals provinces. The project comprises the **Withnell**, **Terra Rossa** and **Tableland** sub-projects. The Withnell licence is adjacent to the evolving Chinook-Magazine zinc-lead project of Rumble Resources Ltd (ASX: RTR) and north of the Strickland Metals Limited (ASX: STK) Iroquois prospect. The Terra Rossa licences are east of the Thaduna copper deposit.

The **Beasley Creek** project lies on the northern flanks of the Rocklea Dome in the southern Pilbara where orogenic-style, structurally controlled gold targets within the various Archean sequences are being targeted. Unexpected lithium anomalism is also being followed-up.

The **Success Dome** project lies in the Ashburton structural corridor and is located midway between the Paulsen's and Ashburton gold deposits. It is prospective for gold and base metals.

The **Polelle** project, 7km southeast of the operating Bluebird gold mine near Meekatharra, hosts a mainly obscured and minimally explored greenstone belt prospective for gold.

The **Wanganui** project, 15km south-west of the operating Bluebird gold mine, presents an opportunity to test for down-plunge and along strike extensions to the existing Main Lode North and South deposits and similar targets.

The **Wilgee Springs** project, along strike from and within the same metamorphic belt as the world-class Greenbushes lithium mine 25km to the south, provides an opportunity to explore for spodumene bearing pegmatites beneath a lateritic cover that has previously hampered exploration.

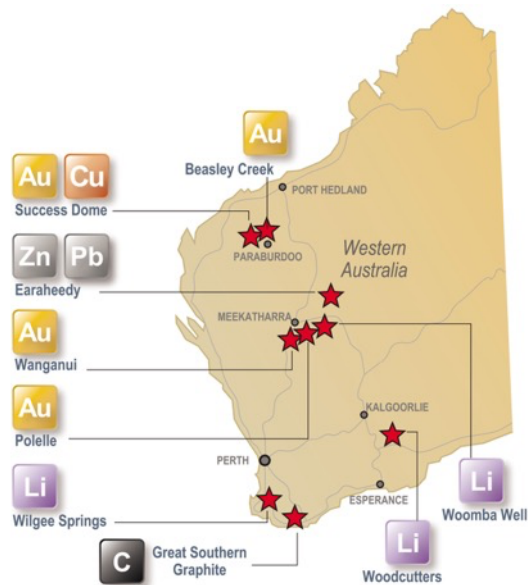
The **Woodcutters** project, is prospective for lithium bearing pegmatites, 25km southeast of the Bald Hill lithium mine and 25km northwest of the Buldania lithium deposit.

The **Woomba Well** project will be evaluated for lithium bearing pegmatites.

The **Great Southern Graphite** project comprises two granted licences encompassing the historical **Kendenup** graphite workings and the adjacent **Martagallup** graphite occurrences and one application covering a graphite occurrence at **Mt. Barrow**.

In **Ghana, West Africa**, Castle's substantial and contiguous tenure position in the country's Upper West region encompasses large tracts of highly prospective Birimian geological terrane, the host to many of West Africa's and Ghana's multi-million-ounce gold mines.

The emerging **Kambale graphite** project also lies on the Ghana tenure. Drilling and test work to date have indicated that it is a sizable open-ended deposit with several favourable attributes to warrant its advance.



Castle retains a **4% net smelter precious metal royalty** over the Julie West licence, a key component of Azumah Resources Limited's Wa Gold Project, Upper West region, Ghana.

## **STATEMENTS**

### **Cautionary Statement**

All of Castle's projects in Australia are considered to be of grass roots or of relatively early-stage exploration status. There has been insufficient exploration to define a Mineral Resource. No Competent Person has done sufficient work in accordance with JORC Code 2012 to conclusively determine or to estimate in what quantities gold or other minerals are present. It is possible that following further evaluation and/or exploration work that the confidence in the information used to identify areas of interest may be reduced when reported under JORC Code 2012.

### **Forward Looking Statement**

Statements regarding Castle's plans, forecasts and projections with respect to its mineral properties and programs are forward-looking statements. There can be no assurance that Castle's plans for development of its mineral properties will proceed. There can be no assurance that Castle will be able to confirm the presence of Mineral Resources or Ore Reserves, that any mineralisation will prove to be economic or that a mine will be successfully developed on any of Castle's mineral properties. The performance of Castle may be influenced by a number of factors which are outside the control of the Company, its Directors, staff or contractors.

### **Competent Persons Statement**

The scientific and technical information in this Report that relates to the geology of the deposits and exploration results is based on information compiled by Mr Stephen Stone, who is Managing Director of Castle Minerals Limited. Mr Stone is a Member of the Australian Institute of Mining and Metallurgy and has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Stone is the Qualified Person overseeing Castle's exploration projects and has reviewed and approved the disclosure of all scientific or technical information contained in this announcement that relates to the geology of the deposits and exploration.